(FILE 'HOME' ENTERED AT 18:08:08 ON 02 OCT 2001)

FILE 'MEDLINE, AGRICOLA, CAPLUS, USPATFULL' ENTERED AT 18:08:22 ON 02 OCT
2001

L1	4	S (ANHYDROFRUCTOSE AND ANTIOXIDANT)
L2	4	DUP REM L1 (0 DUPLICATES REMOVED)
L3	2	S (ANHYDROFRUCTOSE AND ANTI-OXIDANT)
L4	1	S L3 NOT L2
L5	69	S STRESS TOLERANCE AND (ANTI-OXIDANT? OR ANTIOXIDANT?)
L6	47	S L5 AND PLANT
L7	43	DUP REM L6 (4 DUPLICATES REMOVED)

FILE 'STNGUIDE' ENTERED AT 18:31:29 ON 02 OCT 2001

L4 ANSWER 1 OF 1 USPATFULL
AN 97:115135 USPATFULL
TI Glucan lyase producing 1,5-**anhydrofructose**
IN Yu, Shukun, Malmo, Sweden
Pedersen, Marianne, Rallarvagen, Sweden
Kenne, Lennart, Marsta, Sweden
PA T&M Biopolymer Aktiebolag, Uppsala, Sweden (non-U.S. corporation)
PI US 5695970 19971209
WO 9409122 19940428
AI US 1995-416709 19950418 (8)
WO 1993-SE854 19931019
19950418 PCT 371 date
19950418 PCT 102(e) date
PRAI SE 1992-3084 19921021
DT Utility
FS Granted
EXNAM Primary Examiner: Wax, Robert A.; Assistant Examiner: Nashed, Nashaat T.
LREP Bacon & Thomas
CLMN Number of Claims: 12
ECL Exemplary Claim: 1
DRWN No Drawings
LN.CNT 1039
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB The invention relates to an enzyme, exo-.alpha.-1,4-glucan lyase, capable of successively cleaving the terminal .alpha.-1,4-D-glucosidic bonds from the non-reducing ends of an .alpha.-1,4-glucan. The enzyme is selected from the group consisting of .alpha.-1,4-glucan lyase isolated from an alga and functional derivatives and analogs derived from a nucleotide sequence related to an alga .alpha.-1,4-glucan lyase. Further, a method of enzymatically cleaving the terminal .alpha.-1,4-D-glucosidic bonds from the non-reducing ends of an .alpha.-1,4-glucan, and the degradation product 1,5-**anhydrofructose** for use as an oxygen radical scavenger or **anti-oxidant** and/or as a sugar substitute, are disclosed. Additionally, a method of producing an enzyme capable of successively cleaving the terminal .alpha.-1,4-glucosidic bonds from the non-reducing ends of an .alpha.-1,4-glucan; an antibody which binds to the amino acid sequence of the enzyme, and a DNA or RNA probe which recognizes a nucleotide sequence coding for the enzyme, are described.

L2 ANSWER 3 OF 4 CAPLUS COPYRIGHT 2001 ACS
AN 1995:842451 CAPLUS
DN 123:226024
TI Use of .alpha.-1,4-glucan lyase for preparation of 1,5-D-**anhydrofructose**
IN Yu, Shukun; Bojsen, Kirsten; Kragh, Karsten Mathias; Bojko, Maja; Nielsen, John; Marcussen, Jan; Christensen, Tove Martel Ida Elsa
PA Danisco A/S., Den.
SO PCT Int. Appl., 139 pp.
CODEN: PIXXD2
DT Patent
LA English
FAN.CNT 4

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 9510616	A2	19950420	WO 1994-EP3397	19941015
	WO 9510616	A3	19950727		
	W: AM, AT, AU, BB, BG, BR, BY, CA, CH, CN, CZ, DE, DK, ES, FI, GB, GE, HU, JP, KE, KG, KP, KR, KZ, LK, LT, LU, LV, MD, MG, MN, MW, NL, NO, NZ, PL, PT, RO, RU, SD, SE, SI, SK, TJ, TT, UA, US, UZ, VN				
	RW: KE, MW, SD, SZ, AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG				
	CA 2174116	AA	19950420	CA 1994-2174116	19941015
	AU 9479379	A1	19950504	AU 1994-79379	19941015
	AU 695355	B2	19980813		
	GB 2296717	A1	19960710	GB 1996-5417	19941015
	GB 2296717	B2	19980520		
	EP 723593	A1	19960731	EP 1994-930174	19941015
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LI, LU, MC, NL, PT, SE				
	CN 1137294	A	19961204	CN 1994-194430	19941015
	BR 9407838	A	19970513	BR 1994-7838	19941015
	JP 09505988	T2	19970617	JP 1994-511303	19941015
	RU 2140988	C1	19991110	RU 1996-108929	19941015
	CA 2202374	AA	19960425	CA 1995-2202374	19950606
	WO 9612026	A1	19960425	WO 1995-EP2172	19950606
	W: AM, AT, AU, BB, BG, BR, BY, CA, CH, CN, CZ, DE, DK, EE, ES, FI, GB, GE, HU, IS, JP, KE, KG, KP, KR, KZ, LK, LR, LT, LU, LV, MD, MG, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, TJ, TM, TT				
	RW: KE, MW, SD, SZ, UG, AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG				
	AU 9527384	A1	19960506	AU 1995-27384	19950606
	AU 693903	B2	19980709		
	EP 786008	A1	19970730	EP 1995-922520	19950606
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LI, LU, MC, NL, PT, SE				
	CN 1170437	A	19980114	CN 1995-196803	19950606
	GB 2294048	A1	19960417	GB 1995-21167	19951016
	GB 2294048	B2	19970423		
PRAI	GB 1993-21301	A	19931015		
	GB 1993-21302	A	19931015		
	GB 1993-21303	A	19931015		

GB	1993-21304	A	19931015
GB	1993-21305	A	19931015
WO	1994-EP3397	W	19941015
GB	1994-22157	A	19941103
GB	1995-7523	A	19950411
WO	1995-EP2172	W	19950606

AB A method of prepg. the sugar 1,5-D-**anhydrofructose** is described. The method comprises treating an .alpha.-1,4-glucan with an .alpha.-1,4-glucan lyase wherein the enzyme is used in substantially pure form. In a preferred embodiment, if the glucan contains links other than and in addn. to the .alpha.-1,4-links, the .alpha.-1,4-glucan lyase is used in conjunction with a suitable reagent that can break the other links. Genes encoding .alpha.-1,4-glucan lyase fungaly infected Gracilariopsis lemaneiformis, or fungus Morchella costata or M. vulgaris are isolated and their amino acid sequences deduced.

L2 ANSWER 4 OF 4 CAPLUS COPYRIGHT 2001 ACS
AN 1994:503075 CAPLUS
DN 121:103075
TI A new glucan lyase producing 1,5-**anhydrofructose**
IN Kenne, Lennart; Pedersen, Marianne; Yu, Shukun
PA Algatech AB, Swed.
SO PCT Int. Appl., 43 pp.
CODEN: PIXXD2
DT Patent
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 9409122	A1	19940428	WO 1993-SE854	19931019
	W: AU, BB, BG, BR, BY, CA, CZ, FI, HU, JP, KP, KR, KZ, LK, LV, MG, MN, MW, NO, NZ, PL, RO, RU, SD, SK, UA, US, UZ, VN				
	RW: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG				
	SE 9203084	A	19940422	SE 1992-3084	19921021
	SE 507207	C2	19980420		
	AU 9453470	A1	19940509	AU 1994-53470	19931019
	EP 665881	A1	19950809	EP 1993-923707	19931019
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LI, LU, MC, NL, PT, SE				
	US 5695970	A	19971209	US 1995-416709	19950418
PRAI	SE 1992-3084		19921021		
	WO 1993-SE854		19931019		

AB An enzyme, exo-.alpha.-1,4-glucan lyase, capable of successively cleaving the terminal .alpha.-1,4-D-glucosidic bonds from the non-reducing ends of an .alpha.-1,4-glucan is disclosed. A method of enzymically cleaving the terminal .alpha.-1,4-D-glucosidic bonds from the non-reducing ends of an .alpha.-1,4-glucan, and the prodn. of 1,5-**anhydrofructose** for use as an oxygen radical scavenger or anti-oxidant and/or as a sugar substitute, are disclosed. The enzyme isolated from the red alga Gracilariopsis lemaneiformis is a single polypeptide of 98,000-111,000 Da with a pI of 3.9, a pH optimum of 2.5-7.5, and an optimal temp. of .apprx.50.degree.. Using starch affinity chromatog., the enzyme was purified to >90% in a single step.

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L7 ANSWER 20 OF 43 USPATFULL
AN 1998:82978 USPATFULL
TI Transgenic maize with increased mannitol content
IN Adams, Thomas R., North Stonington, CT, United States
Anderson, Paul C., West Des Moines, IA, United States
Daines, Richard J., Ledyard, CT, United States
Gordon-Kamm, William, Urbandale, IA, United States
Kausch, Albert P., Stonington, CT, United States
Mann, Michael T., Mystic, CT, United States
Orr, Peter M., Pawcatuck, CT, United States
Warner, David C., Wakefield, RI, United States
PA Dekalb Genetics Corporation, Dekalb, IL, United States (U.S. corporation)
PI US 5780709 19980714
AI US 1996-594861 19960119 (8)
RLI Continuation-in-part of Ser. No. US 1993-113561, filed on 25 Aug 1993
DT Utility
FS Granted
EXNAM Primary Examiner: Benzion, Gary
LREP Schwegman, Lundberg, Woessner & Kluth, P.A.
CLMN Number of Claims: 24
ECL Exemplary Claim: 1,17,19
DRWN 8 Drawing Figure(s); 11 Drawing Page(s)
LN.CNT 4487
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB The present invention provides a method for conferring tolerance or resistance to water or salt stress in a monocot **plant**, and/or altering the osmoprotectant content of a monocot **plant**, by introducing a preselected DNA segment into the **plant**. This invention also relates to the transformed cells and seeds, and to the fertile plants grown from the transformed cells and to their pollen.

L7 ANSWER 38 OF 43 CAPLUS COPYRIGHT 2001 ACS
AN 1997:214369 CAPLUS
DN 126:274972
TI Transgenic tobacco plants with an improved tolerance towards oxidative stress in chloroplasts
AU Slooten, L.; Van Camp, W.; Kushnir, S.; Botterman, J.; Van Montagu, M.; Inze, D.
CS Laboratorium voor Biofysica, Vrije Universiteit Brussel, Brussels, B-1050, Belg.
SO Photosynth.: Light Biosphere, Proc. Int. Photosynth. Congr., 10th (1995), Volume 4, 165-170. Editor(s): Mathis, Paul. Publisher: Kluwer, Dordrecht, Neth.
CODEN: 64DFAW
DT Conference
LA English
AB Transgenic plants overproducing **antioxidant** enzymes in the chloroplasts were generated in Nicotiana tabacum var Petit Havana SR1. The overproduced enzymes include a chloroplastic Fe-superoxide dismutase and a cytosolic ascorbate peroxidase (APx), both from Arabidopsis thaliana. Oxidative **stress tolerance** was measured in leaf disk assays. Leaf disks were incubated overnight with Me viologen, aminotriazole, or eosin, and were then illuminated. These treatments give rise to the generation of, resp., superoxide, hydrogen peroxide and singlet oxygen during illumination. The damage resulting from these treatments was assessed from the increase in conductance of the floating soln., and from measurements of variable chlorophyll fluorescence. Overproduced APx provided a slight protection against Me viologen-induced damage, and a pronounced protection against aminotriazole-induced damage. Overprodn. of FeSOD provided protection against Me viologen-induced damage, but not against aminotriazole-induced damage. None of the transformants exhibited an enhanced tolerance to singlet oxygen, generated by eosin.

L7 ANSWER 34 OF 43 CAPLUS COPYRIGHT 2001 ACS
AN 1996:460914 CAPLUS
DN 125:110228
TI Modifying the expression of **antioxidant** systems in transgenic plants
AU Badiani, Maurizio; D'Annibale, Alessandro; Paolacci, Anna Rita; Fusari, Angelo
CS Dipartimento di Agrobiologia e Agrochimica, Universita' di Viterbo, Viterbo, 01100, Italy
SO Agro-Food-Ind. Hi-Tech (1996), 7(2), 21-26
CODEN: AIHTEI; ISSN: 1120-6012
DT Journal; General Review
LA English
AB A review with 33 refs. Reactive oxygen species have been implicated in the etiol. of **plant** metabolic disorders and diseases caused by many stressing agents. The available information on the improvement of **stress tolerance** by increasing the endogenous **antioxidant** capacity in transgenic plants is herein briefly presented and discussed.

L7 ANSWER 29 OF 43 MEDLINE
AN 97357234 MEDLINE
DN 97357234 PubMed ID: 9214585
TI Use of transgenic plants to study **antioxidant** defenses.
AU Allen R D; Webb R P; Schake S A
CS Department of Biological Sciences, Texas Tech University, Lubbock 79409, USA.. brrda@ttu.edu
SO FREE RADICAL BIOLOGY AND MEDICINE, (1997) 23 (3) 473-9. Ref: 39
Journal code: FRE; 8709159. ISSN: 0891-5849.
CY United States
DT Journal; Article; (JOURNAL ARTICLE)
General Review; (REVIEW)
(REVIEW, TUTORIAL)
LA English
FS Priority Journals
EM 199708
ED Entered STN: 19970908
Last Updated on STN: 19970908
Entered Medline: 19970826
AB The abundance of O2 and the highly energetic electron transfer reactions associated with thylakoid membranes make chloroplasts a major source of reactive oxygen intermediates (ROI) in photosynthetic tissues of plants. Attempts to reduce oxidative damage in chloroplasts have included the manipulation of ROI-scavenging enzymes by gene transfer technology. Much of this work has focused on chloroplast-localized superoxide dismutase (SOD), both chloroplast-targeted and cytosolic ascorbate peroxidase (APX) and glutathione reductase (GR). Increased activity of SOD in chloroplasts of transgenic tobacco plants generally leads to increased protection from membrane damage caused by exposure to methyl viologen (MV). In addition, overexpression of chloroplastic Cu/Zn SOD can lead to increased protection from photooxidative damage caused by high light intensity and low temperatures. Transgenic tobacco plants that overexpress APX either in the cytosol or chloroplastic compartments also show reduced damage following either MV exposure or photooxidative treatment and transgenic plants that express increased levels of GR have elevated pools of ascorbate and GSH. Though still preliminary, these results clearly indicate that alterations in the expression of enzymes involved in ROI-scavenging can have significant metabolic effects and provide the hope that this strategy can be used to develop crop plants with increased **stress tolerance**.

L7 ANSWER 39 OF 43 CAPLUS COPYRIGHT 2001 ACS
AN 1995:660530 CAPLUS
DN 123:138956
TI Activities of free radical processing enzymes in dry sunflower seeds
AU Reuzeau, C.; Cavalie, G.
CS Centre de Biologie et de Physiologie Vegetales, Universite Paul Sabatier, Toulouse, 31062, Fr.
SO New Phytol. (1995), 130(1), 59-66
CODEN: NEPHAV; ISSN: 0028-646X
DT Journal
LA English
AB Changes in lipid peroxidn. and enzymic activities of oxygen radical detoxification were studied in dry seeds of sunflower (Helianthus annuus L.) in relation to their germinability. There was a pos. relationship between the total dehydrogenase activity extd. from whole seeds and germination at both 25 .degree.C and 10 .degree.C. Catalase and superoxide dismutase activities in embryonic axes and germination at 10 .degree.C were neg. correlated. Glucose-6-phosphate dehydrogenase and total peroxidase activities were higher in seeds showing high germination capacity. A high malondialdehyde content and a high total glutathione content, were found in cotyledons of dry seeds exhibiting no germination capacity. A net decrease (20%) in the activities of catalase and glucose-6-phosphate dehydrogenase was found in these cotyledon fragments. Glutathione reductase and glutathione peroxidase activities were increased by 20 and 50%, resp. Kinetic properties of glucose-6-phosphate dehydrogenase were also affected; the apparent Km for NAD+ was lower in seeds unable to germinate than in seeds with a high germination ability. Oxidative stress appeared to affect seed quality by lowering **antioxidant** defense capacity; the collapse of the oxygen radical detoxification system appeared to be the result of the ineffectiveness of the glucose-6-phosphate dehydrogenase activity; its potential role in oxidative **stress tolerance** and seed germination ability is discussed.

L7 ANSWER 43 OF 43 CAPLUS COPYRIGHT 2001 ACS
AN 1990:50533 CAPLUS
DN 112:50533
TI Uniconazole-induced alleviation of low-temperature damage in relation to **antioxidant** activity
AU Upadhyaya, Abha; Davis, Tim D.; Walser, R. H.; Galbraith, A. B.; Sankhla, N.
CS Dep. Agron. Hortic., Brigham Young Univ., Provo, UT, 84602, USA
SO HortScience (1989), 24(6), 955-7
CODEN: HJHSAR; ISSN: 0018-5345
DT Journal
LA English
AB Cucumber (Cucumis sativus cv. Marketer) seedlings were treated with 100 .mu.g of soil-applied uniconazole and then exposed to 22 or -1.degree. for 8 h 1 wk following treatment. Following exposure to -1.degree., electrolyte leakage from leaf tissue of treated plants was about one-third that of the controls, indicating that uniconazole reduced low-temp. damage. Foliar proline content was unaffected by uniconazole at 22.degree. but, following low temp. exposure, was .apprxeq. 25% less in treated than in control plants. Following low-temp. exposure, malondialdehyde content was .apprxeq.25% less in treated seedlings than in controls, suggesting that uniconazole may have decreased low temp.-induced lipid peroxidn. Uniconazole-induced low-temp. tolerance was accompanied by increased levels or activities of various **antioxidants,** including glutathione, peroxidase, and catalase. These results are consistent with the hypothesis that triazole-induced **stress tolerance** is due, at least in part, to increased **antioxidant** activity that reduces stress-related oxidative damage to cell membranes.

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=> s glucan lyase and (stress tolerance or oxidative stress)
L1             0 GLUCAN LYASE AND (STRESS TOLERANCE OR OXIDATIVE STRESS)

=> s anhydrofructose and (stress tolerance or oxidative stress)
L2             0 ANHYDROFRUCTOSE AND (STRESS TOLERANCE OR OXIDATIVE STRESS)
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